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INNOVACIÓN EN LA FORMACIÓN DOCENTE Y EN EL DESARROLLO DE COMPETENCIAS
EN EL APRENDIZAJE DE LAS CIENCIAS ECONÓMICAS Y EMPRESARIALES

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SECCION III

LAS TECNOLOGÍAS DE LA INFORMACIÓN Y
COMUNICACIÓN, REDES SOCIALES E INTELIGENCIA
ARTIFICIAL EN LA EDUCACIÓN SUPERIOR

THE OPPORTUNITIES AND RISKS OF USING CHATGPT
IN UNIVERSITY EDUCATION: ANALYSIS IN
THE DEGREE OF BUSINESS ADMINISTRATION
AND MANAGEMENT

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1. INTRODUCTION

Today, new technologies have been growing, becoming an essential aspect of people's lives. Within the new technologies, it is worth noting the great development that Artificial Intelligence (AI) technologies have had in recent years, they have been growing and improving continuously, which has led to great advances in different areas such as education (Lo, 2023; Xu et al., 2021), the medicine industry (Lee, 2023) etc.

Among the new existing AI applications, the appearance of ChatGPT is noteworthy. This new tool is an artificial intelligence model that was created by the company GPT (Generative Pre-trained Transformer) and that uses the latest generation natural language processing (NLP) model called GPT-3. The tool interacts realistically and is even capable of answering follow-up questions, admitting its mistakes, challenging faulty premises as well as rejecting inappropriate requests (OpenIA, 2023). In fact, the tool provides instant feedback and 24/7 access to information

(Lee, 2023). That is why ChatGPT is revolutionizing the way people interact with machines and artificial intelligence applications.

Before the existence of this new artificial intelligence tool, the interactions that existed between people and machines were mainly based on direct commands and predefined responses. This resulted in a limited and frustrating experience for users, as communication was rigid and poorly tailored to individual needs. However, with GPT chat, the interaction with the machines has become much more fluid and natural. The GPT model is trained using large amounts of text data in multiple languages, allowing it to learn and understand different linguistic patterns and contexts. This means that GPT chat can generate contextual and meaningful responses, tailored to users' specific questions and needs.

In fact, since the launch of this new application at the end of 2022 and up to the present, its use has not stopped increasing, being very striking for all types of audiences. With the arrival of the COVID-19 crisis, which caused many schools, institutes and universities, that is, various training sites in general, to close and adapt to online education, the need arose to have a new way of learning online. Therefore, this new tool has been a great help for students since it allows them to have a virtual tutor at all times that provides detailed and concise answers to the questions that arise.

Therefore, this application has great advantages in the educational field (Zhai, 2022), even providing keys for use in the classroom (Lieberman, 2023; Mollick & Mollick, 2022). It turns out that ChatGPT allows for more personalized learning by adapting content and feedback to individual students' needs. Additionally, it offers instant access to a vast knowledge base, enriching learning and facilitating research in diverse areas. Real-time feedback allows students to correct errors and improve their skills continuously. Also, it acts as a virtual tutor, answering questions and explaining complex concepts, enhancing comprehension and supporting the learning process. Interacting with artificial intelligence stimulates creativity and critical thinking, encouraging students to ask deeper questions and explore new ideas. Moreover, efficiency in assessment is achieved through automatic grading of assignments and written work, saving time for educators.

However, despite the advantages that the use of this new artificial intelligence tool has, there is currently great concern about the consequences that this new technology could have for students. ChatGPT in education includes the lack of empathy and emotional understanding, as it cannot replicate the emotional bond between the student and educator as a human teacher would. Excessive use can lead to technological dependency, reducing students' ability to solve problems on their own. The quality of educational interaction may be limited, as ChatGPT may not be able to sustain complex and profound conversations. Privacy and security issues may arise concerning the collection and storage of students' personal data. Data bias is another challenge since training the AI on biased information can perpetuate prejudices and stereotypes in its responses, affecting the quality and equity of learning. Additionally, the use of ChatGPT in the classroom requires supervision and accountability to ensure quality education and uphold ethical values.

Among the main problems associated with the use of ChatGPT in education, there are significant concerns about ethics and the potential for students to misuse it to complete their assignments and academic tasks. One of the ethical dilemmas involves academic integrity and plagiarism. With the vast amount of information available at their fingertips, students may be tempted to copy and paste responses generated by ChatGPT without fully understanding the content or giving proper credit to the sources. This raises issues of intellectual property and academic honesty, as students may pass off AI-generated work as their own, leading to a decline in the value of authentic learning and critical thinking. Over-reliance on ChatGPT can hinder students' development of essential skills, such as problem-solving, creativity, and independent thinking. If students become overly dependent on AI to provide answers, they may miss out on the opportunity to grapple with complex concepts, explore different approaches, and develop their cognitive abilities.

To mitigate these ethical challenges, educational institutions should provide proper guidance and training to both educators and students on the responsible and ethical use of ChatGPT. This includes promoting critical thinking skills, teaching students to verify information from multiple

sources, and emphasizing the importance of original thought and authentic engagement with learning materials.

Another important question is in relation to security and privacy. Considering the large amount of data this application uses, there is a risk that personal and confidential information may be compromised or misused. It is essential that strong security and privacy measures are put in place to ensure that users are protected and that their data is not misused.

In short, GPT chat has revolutionized the way we interact with machines and has significantly improved our experience as users. However, it is also important to address the concerns and challenges associated with this rapidly growing technology (Tlili et al., 2023; Zhuo, 2023).

2. OBJECTIVES

The main aim of this research is to analyze the perception that students of the University of Huelva and the University of Málaga have about the use of ChatGPT in higher education. As AI continues to shape various aspects of our lives, including education, understanding how students perceive and interact with AI-driven tools becomes increasingly important. In this context, the present study seeks to delve into the nuanced perspectives of students regarding the integration of ChatGPT, in their academic environment.

The six goals of this research are as follows:

The first goal is to explore the students' perceptions concerning the potential risks and advantages associated with the use of ChatGPT as an educational tool. In recent years, there has been an increasing interest in integrating Artificial Intelligence (AI) technologies into higher education to enhance the learning experience. However, with such advancements come concerns about the implications they may have on students' academic development and the overall educational process. This goal seeks to delve into the nuanced perspectives of students regarding the benefits and drawbacks of incorporating ChatGPT in their academic activities.

The second goal delves into the level of familiarity students have with ChatGPT and its application in higher education. As AI-driven tools become more prevalent in various sectors, including education, understanding students' awareness and knowledge of these technologies is crucial. By exploring the students' degree of familiarity with ChatGPT, this study aims to shed light on the extent to which AI-based tools are integrated into their academic lives.

With the increasing presence of ChatGPT in higher education, the third goal examines the extent to which its integration has contributed to an educational transformation. The rapid advancements in AI have paved the way for innovative educational approaches. Thus, understanding the impact of ChatGPT on teaching methodologies, learning experiences, and overall educational practices is essential in assessing its potential as a transformative tool in the academic landscape.

The fourth goal focuses on assessing the quality of responses generated by ChatGPT compared to traditional human interaction. As AI technologies evolve, so does their capacity to provide responses that simulate human-like interaction. This goal seeks to understand how students perceive the effectiveness and reliability of ChatGPT's responses as a means of supporting their learning process in comparison to conventional human interactions, such as those with instructors or peers.

Ethical considerations play a vital role in the integration of AI-based tools in higher education. The fifth goal explores the ethical implications that arise with the use of ChatGPT in academic settings. Concerns regarding academic integrity, plagiarism, data privacy, and the responsible utilization of AI technologies will be examined to gain insights into the ethical challenges posed by ChatGPT's implementation.

Lastly, the sixth goal aims to gauge students' perceptions of the integration of ChatGPT as an innovative approach in higher education. Innovation in education has become a key focus in enhancing learning outcomes and student engagement. By understanding how students perceive ChatGPT's role as an innovative tool, this study seeks to uncover their attitudes towards novel AI-driven educational methods and technologies.

Through a comprehensive exploration of these goals, this study asks six research questions (RQ), one for each objective, to seek to provide valuable insights into the perceptions and experiences of university students regarding the use of ChatGPT in higher education. Hence, the following RQ are posed to guide the review:

- RQ1: What do students think about the risks and advantages of this application?
- RQ2: How familiar are the students with the use of ChatGPT?
- RQ3: Does the ChatGPT tool mean an educational transformation?
- RQ4: What quality of response does ChatGPT have?
- RQ5: How does ChatGPT affect ethics?
- RQ6: What degree of innovation do students have?

For face this aim, a questionnaire was carried out between the students of the University of Huelva and Málaga. Different variables were use in the questionnaire according to the literature. The findings can potentially inform educators, policymakers, and educational institutions about the implications of incorporating AI-based technologies in the learning process.

3. METHODOLOGY

The methodology followed in this analysis involved surveying students from the University of Málaga and the University of Huelva to gather comprehensive information about the use of the ChatGPT and understand the students' perceptions and experiences regarding its usage. To achieve this, a systematic approach was adopted, employing various techniques and strategies to ensure a robust and reliable data collection process.

To obtain a representative sample of university students, a strategic selection of degree programs from both business and engineering fields was made. This selection aimed to encompass a diverse range of academic disciplines and provide a broader perspective on using ChatGPT

in different educational contexts. Including students from multiple programs made it possible to capture a wide array of experiences and opinions regarding the platform.

The survey was designed using the online tool Google Forms, which offered a convenient and efficient means of collecting data in a structured manner. The questionnaire consisted of a total of 31 questions, with 28 of them being based on a Likert scale. This allowed participants to indicate their level of agreement or disagreement with statements related to various aspects of ChatGPT, including its usefulness, content quality, accessibility, and overall satisfaction with the user experience.

To ensure the participation of a substantial number of students, the survey was disseminated through multiple channels available to the professor for interacting with students. It was discussed during classes, and students were sent emails containing the link to the questionnaire on Google Forms. Clear instructions and guidelines were provided to facilitate the completion of the survey, and the importance of voluntary participation was emphasized. Participants were assured of the confidentiality and anonymity of their responses, with explicit explanations that the data would be used solely for research purposes and that their identities would remain undisclosed in any reports or subsequent analyses.

To encourage student participation and increase the response rate, periodic reminders were sent during the data collection period. A deadline was established for the submission of responses to ensure a defined timeframe for data analysis. This allowed for efficient processing and tabulation of the collected data using statistical analysis software. Descriptive studies were conducted to derive measures of central tendency and dispersion, enabling a comprehensive understanding of the survey results. Furthermore, charts and tables were generated to visualize the findings clearly and comprehensibly, facilitating the interpretation and presentation of the data.

The obtained sample comprised a total of 81 students from the University of Málaga and the University of Huelva, representing a significant portion of the student population and providing a solid foundation for drawing meaningful conclusions. By considering the demographic data

and distribution of participants across different degree programs, a nuanced understanding of the context in which the students engage with ChatGPT was attained. This holistic approach to data collection and analysis ensures that the results reflect the diverse perspectives and experiences of the students, contributing to the validity and reliability of the findings.

Table 1 shows the filter questions and the study variables used in the questionnaire that was carried out.

TABLE 1. Questions

QUESTIONS	VARIABLE
Have you ever used any of these AI tools?	Use of IA tools
Consider that AI tools have more risks or benefits	Benefits and risks
I am familiar with Chatgpt Chatgpt could mean an educational transformation Chatgpt is effective in increasing the chances of educational success Chatgpt is efficient in providing a comprehensive understanding of various topics in an easy-to-understand language. Chatgpt will mean a change in current conventional education Chatgpt will drive a reform in learning in the future full of digital potential Chatgpt is a useful tool for learning. The abuse of the use of chatgpt can decrease innovative and critical thinking abilities Chatgpt decreases student creativity	Educational transformation
The information offered by chatgpt is precious The answers offered by chatgpt are reasonable The answers offered by chatgpt are reliable The quality of offering chatgpt information is adequate Chatgpt has no errors Chatgpt requires questions that are easy to ask Chatgpt requires very specific questions	Quality of the answers chatgpt offered by

<p>The use of chatgpt can lead to plagiarism</p> <p>The use of chatgpt can lead to cheating by students</p> <p>Chatgpt can cause inaccuracy in relevant topics</p> <p>Chatgpt can cause vague-ness</p> <p>Chatgpt may affect the reliability of the information provided</p> <p>Chatgpt can provide false information</p> <p>There is a data security risk when using Chatgpt</p>	<p>Ethics</p>
<p>If I find out that a new technology is available I try to find a way to test it.</p> <p>Among my peers, I am usually one of the first to explore new technologies.Me gusta experimentar con nuevas tecnologias.</p> <p>In general I am not averse to trying new technologies.</p>	<p>Predisposition of students to new technologies</p>

Source: Own elaboration based on previous literature

4. RESULTS

This study aimed to analyse in detail the use of Artificial Intelligence (AI) in teaching by university students from two prestigious universities located in Malaga and Huelva. The conducted survey had broad participation, with a total of 81 students surveyed, which represents a significant sample of the student population and provides solid and representative conclusions. The survey consists of 31 questions, out of which 28 are formulated on a Likert scale.

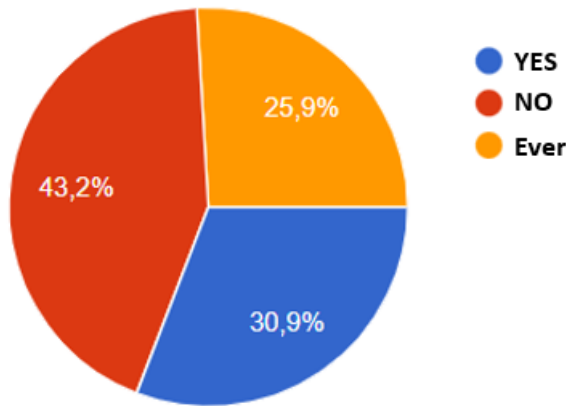
When examining the demographic characteristics of the respondents, it was observed that the majority of them were 18 or 19 years old, representing 53.1% and 33.3%, respectively. The remaining participants were over 20 years old. Regarding gender distribution, it was identified that 70.4% of the students were male, while the remaining 29.6% were female. These data provide a panoramic view of the sample composition and allow for considering possible biases related to age and gender in the obtained responses.

In terms of academic field, it was determined that the vast majority of respondents, 77%, belonged to fields related to the field of engineering, while the remaining 23% were in the area of business studies. This distribution by areas of study is relevant since engineering careers are often

more connected to technology and innovation, which can influence the perspective of students regarding the use of AI in education.

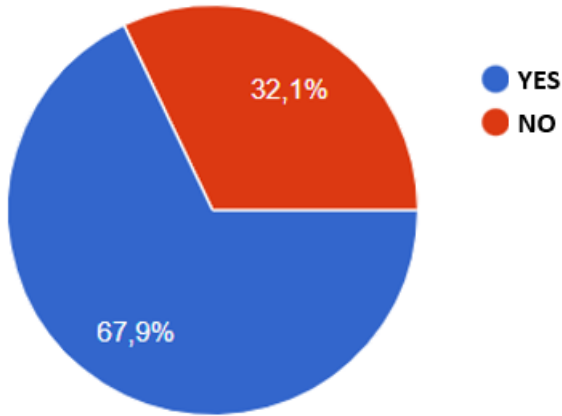
Regarding the students' knowledge and familiarity with AI tools, it was observed that the most recognized and familiar tool for the respondents was ChatGPT, with a familiarity rate of 92.6%. It was followed by Bing Chat with a recognition rate of 22.2%. Other tools were mentioned to a lesser extent, such as BeautifulAI, autoGPT, Midjourney, LeonardoAI, Dall-E, DaVinciAI, and Stable Diffusion. However, a small percentage, specifically 4.9% of the participants, indicated not being familiar with any of these tools. These findings reflect a high penetration of the ChatGPT tool and its wide recognition among the surveyed university students.

FIGURE 1. Using AI tools to perform university tasks



Regarding the actual use of AI tools in university tasks (Figure 1), it was observed that 43.2% of the surveyed university students had not used them for this purpose. In contrast, 30.9% had used these tools in their academic tasks, while the remaining 25.9% had only used them on some occasions. These data highlight that there is still a considerable proportion of students who have not experienced or fully utilized AI in the educational context, suggesting room for growth and opportunities for its more widespread adoption and use.

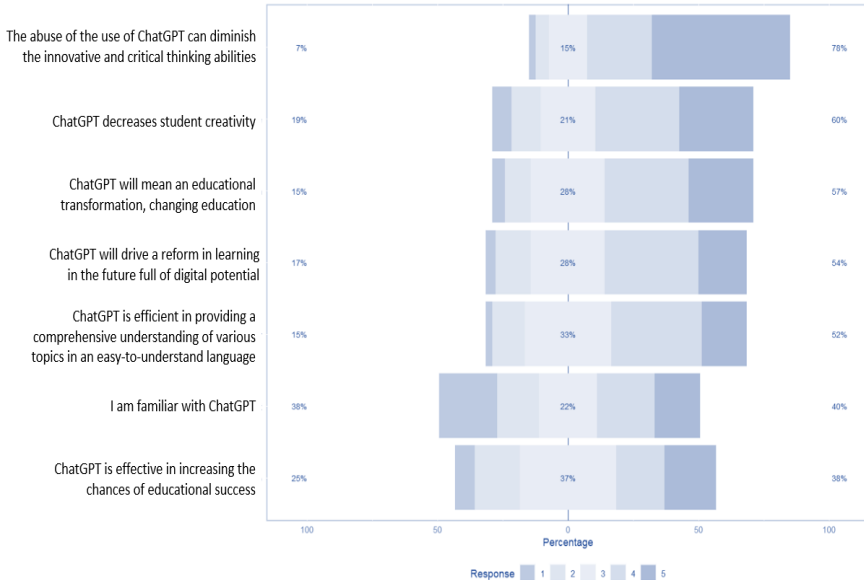
FIGURE 2. *Belief that AI has more benefits than risks*



In terms of students' perception and attitude towards AI in teaching, divergent opinions were evident, as Figure 2 show. While 67.9% of the respondents considered that AI has more benefits than risks, the rest of the participants expressed the opposite opinion, arguing that there are more risks associated with its use. This divergence of opinions underscores the need for ongoing debate and careful evaluation of the effects and consequences of AI in education.

Figure 3 shows the familiarity that students have with the new popular tool and the perception of the students about the educational transformation that chatGPT could means in this filed. Firstly, regarding to the familiarity, overall, the majority of students expressed not being very familiar with the ChatGPT tool in spite of being increasingly known among students. Secondly, regarding to the possible educational transformation, most students considered that its use could signify an educational transformation and change the way of teaching in the future.

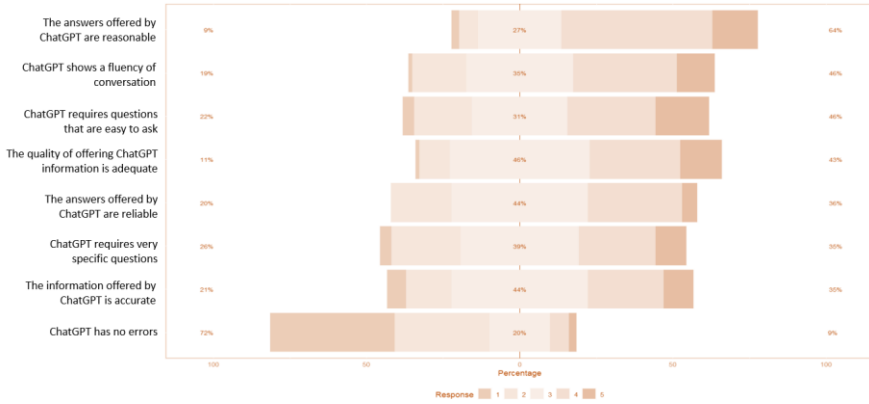
FIGURE 3. *The use of ChatGPT in education (Familiarity with the tool and educational transformation)*



However, there was no clear consensus on whether ChatGPT is effective in improving academic success. On the other hand, students perceived that ChatGPT is efficient in providing a comprehensive understanding of various topics in an easily understandable language, and they considered that this tool could drive an education reform full of digital potential in the future. Nevertheless, they also expressed concern about the abuse of ChatGPT usage, as they believe it can diminish innovative capabilities, critical thinking, and student creativity.

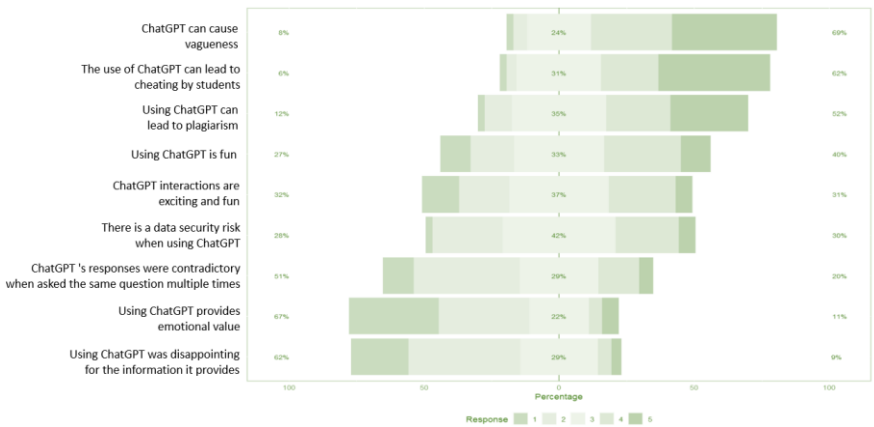
Regarding the responses generated by ChatGPT as Figure 4 indicates, students did not reach a clear consensus on whether these responses offer accurate, reliable, and quality information. Although they were generally considered reasonable, there remained some uncertainty and lack of agreement in this regard. However, there was a widespread agreement that ChatGPT does not contain evident errors in its responses.

FIGURE 4. Perception of responses generated by ChatGPT about the quality of the answers.



The respondents highlighted that ChatGPT's performance depends on the appropriate formulation of questions, which should be challenging but not overly complex, and they do not necessarily need to be extremely specific. A lack of fluency in interactions with the tool was also perceived, indicating that there are still challenges in terms of improving the naturalness and quality of communication with AI.

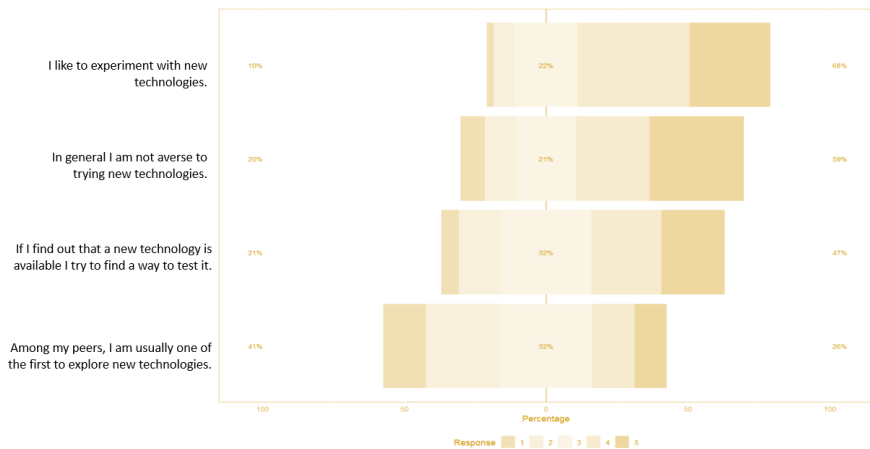
FIGURE 5. Students' experience with ChatGPT (Ethic).



Regarding students' experience with ChatGPT interactions (Figure 5), the majority did not consider these interactions to be exciting or fun. There was a lack of emotional value perceived in them. However, for the vast majority of participants, the use of ChatGPT was not disappointing in terms of the information provided since the responses did not show significant contradictions when repeating the same question on different occasions. A recurring concern among students is that the use of ChatGPT may lead to plagiarism, as they are aware that this tool can facilitate cheating and encourage academic laziness. However, they do not consider there to be a significant risk of data security when using ChatGPT.

It turns out in Figure 6 that the profile of the surveyed student reveals that if they become aware of the availability of a new technology, they are willing to find a way to try it out. Although they are not usually the first to explore new technologies among their peers, they enjoy experimenting with them and do not have an aversion to trying them. This profile of a curious and open-minded student provides a relevant context for understanding the adoption and potential use of AI in university education.

FIGURE 6. Predisposition of students to new technologies.



5. DISCUSSION AND CONCLUSIONS

This study, has examined the use of Artificial Intelligence (AI) in teaching by university students from two prestigious universities in Malaga and Huelva. The survey conducted with 81 students provided valuable insights into their knowledge, perception, and experiences related to AI tools, particularly focusing on the widely recognized ChatGPT.

The majority of respondents were 18 or 19 years old, predominantly male, and studying fields related to engineering. This demographic composition highlights the influence of age, gender, and academic background on students' perspectives on AI in education.

The familiarity rate with AI tools, specifically ChatGPT, was high among the surveyed students, indicating its widespread recognition and usage. However, a considerable proportion of students had not yet utilized AI tools in their academic tasks, suggesting room for further exploration and adoption.

Students held divergent opinions on the benefits and risks of AI in teaching, with a majority believing that AI offers more benefits. While they expressed concerns about potential abuses and diminishing creative and critical thinking skills, they acknowledged the transformative potential of AI in education and its ability to enhance understanding and drive digital reform.

The students' perception of ChatGPT's responses varied, with no clear consensus on accuracy, reliability, and quality. However, they generally agreed that the tool did not contain evident errors. They emphasized the importance of formulating challenging yet clear questions for better AI performance and expressed a desire for improvements in the naturalness and fluency of interactions.

Despite perceiving interactions with ChatGPT as lacking excitement and emotional value, the students did not find the tool disappointing in terms of information provided, as responses remained consistent across repeated questions.

Concerns regarding plagiarism and academic laziness were prevalent among students, acknowledging that AI tools like ChatGPT could

facilitate cheating. However, they perceived the risk of data security as low when using such tools.

The surveyed students exhibited a curious and open-minded profile, willing to try new technologies when made available to them. Although they were not typically early adopters, they expressed a willingness to experiment and explore AI tools in the context of education.

These findings shed light on the current landscape of AI adoption among university students, highlighting the need for ongoing discussions and careful evaluation of its implications. The study provides valuable insights for educators, policymakers, and developers to consider when integrating AI into teaching methodologies, addressing concerns, and maximizing the benefits while preserving essential skills and creativity.

Regarding future research lines for this research, we could carry out the same study, but with students from other universities to verify in those cases if the results obtained are the same or, on the contrary, differ from those presented. On the other hand, and following the same line, the present study could also be carried out in other universities in Andalusia or even in Spain, with the aim of verifying if the results obtained are different. Finally, this research could also be expanded, carrying out the questionnaire during the next academic year since this artificial intelligence tool will already be better known and used in its vast majority by students and, therefore, the results and conclusions obtained from the study could be modified.

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